

REMARKS

The non-final Office Action dated June 25, 2008 was received and carefully reviewed.

Claims 1-9 are hereby amended to clarify the invention, and not for reasons of patentability. Furthermore, claims 10-18 are hereby canceled without prejudice or disclaimer. Accordingly, claims 1-9 remain pending in the present application, of which claim 1 is independent. The amendments to the specification were made to correct typographical errors contained therein, and do not include new matter.

Applicants respectfully request entry of the amendments present above, as well as the remarks presented below, to place the application in condition for immediate allowance. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Rejections under 35 U.S.C. §103

Claims 1-9 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ehlert (U.S. Patent No. 5,110,403) (*Ehlert*, hereinafter) in view of Frei (WO 99/01235) (*Frei*, hereinafter). Applicants traverse this rejection as follows.

Applicants respectfully submit that present independent claim 1, and the claims dependent therefrom, are patently distinguishable over *Ehlert* and *Frei*, since *Ehlert* and *Frei*, either taken alone or in combination, fail to disclose, teach or suggest all of the features recited in the pending claims. For example, independent claim 1 (emphasis added) recites:

Sewage slurry ultrasonic apparatus for applying ultrasonic energy to sewage slurry, the apparatus comprising:
an applicator having an outwardly facing surface;
an extender which extends from the outwardly facing surface;
and
at least one booster at the end of the extender remote from the applicator for boosting ultrasonic energy applied thereto to cause the applicator to oscillate,
wherein the applicator, extender and booster are integrally formed.

Thus, independent claim 1 is directed at least to the features an applicator having an outwardly facing surface, *an extender which extends from the outwardly facing surface*, and at least one booster, *wherein the applicator, extender and booster are integrally formed*.

Applicants respectfully submit that the present independent claim 1 is patentably distinguishable over *Ehlert* and *Frei*, taken either alone or in combination. Specifically, neither *Ehlert* nor *Frei*, either taken alone or in combination, disclose an applicator having an outwardly facing surface, *an extender which extends from the outwardly facing surface*, and at least one booster, *wherein the applicator, extender and booster are integrally formed*, as recited in independent claim 1 of the present invention.

Ehlert is directed to a conventional rotary horn that uses “ultrasonic energy for the bonding and/or cutting of thermoplastic materials” (see *Ehlert*, col. 2, lns. 20-21, emphasis added), as is well known within the art.

The Examiner purports that *Ehlert* “teaches the apparatus for applying ultrasonic energy to sewage slurry” (see page 3, lines 5-6 of the Office Action dated June 25, 2008), and cites col. 11, lines 15-24 of *Ehlert* as disclosing this feature. However, col. 11, lines 15-24 of *Ehlert* actually recites:

As already indicated, the high efficiency ultrasonic rotary horn of the present invention comprises a shaped, solid metal object. In general, any metal having suitable acoustical and mechanical properties can be used. As a practical matter, however, the most suitable metals are aluminum, monel, titanium, and some alloy steels. If desired, the horn can be coated or plated with another metal to reduce abrasive wear. For applications requiring high amplitude and higher stress, titanium is preferred.

Thus, as seen in the above passage, *Ehlert* is completely silent with regard to the disclosed solid rotary horn being used for applying ultrasonic energy to sewage slurry, as recited in the present invention. Rather, *Ehlert* merely discloses a conventional metal rotary horn used for bonding two or more materials together (see *Ehlert*, col. 6, lns. 17-19), and not for applying ultrasonic energy to a sewage slurry, as alleged by the Examiner.

Furthermore, Applicants respectfully submit that the conventional rotary horn of *Ehlert* operates at much lower power levels of around 50-650 watts (see *Ehlert*, Table 17, and col. 5,

Ins. 22-25) than the ultrasonic apparatus of the present invention, which requires a power input of between 3,000-6,000 watts to cause cavitation in the sewage slurry, thereby promoting the slurry's breakdown. Thus, the device of *Ehlert* is not subject to the same technical considerations as the present invention.

However, the Examiner correctly admits on page 3, lines 7-11 of the Office Action dated June 25, 2008 that *Ehlert* “does not teach the applicator having an outwardly facing surface, the apparatus further including an extender which extends from the outwardly facing surface, and at least one booster at the end of the extender remote from the applicator for boosting ultrasonic energy applied thereto to cause the applicator to oscillate, wherein the applicator, extender and booster are integrally formed”, and is reliant upon *Frei* for disclosing these features.

Similar to *Ehlert*, *Frei* is also directed to a well-known assembly for “the welding together of packaging container parts of annular or circular cross section” and “includes layers of thermoplastic material, which is extremely well suited for ultrasonic welding” (see *Frei*, page 5, ln. 26 to page 6, ln. 1; emphasis added).

The Examiner purports that projection 16 of *Frei* corresponds to the extender as disclosed in the present invention (see page 3, Ins. 12-14 of the Office Action dated June 25, 2008). However, *Frei* clearly discloses that in the embodiment in which the sonotrode and booster 3 are formed as one piece (i.e., integrally formed), the booster 3 corresponds to a lengthened projection 16 (see *Frei*, page 7, Ins. 30-35). Consequently, no “extender” would be present since the sonotrode 4 would directly merge with the combined projection/booster 3.

Furthermore, assuming *arguendo*, that the “one-piece” embodiment disclosed by *Frei* with the projection 16 and the booster 3 as distinct regions can be equated with the integrally formed applicator, extender and booster of the present invention, which Applicants submit they cannot, the projection 16 still cannot constitute an “extender” in the sense of the claimed invention. This is because the projection 16 of *Frei* is disclosed as only being 15 mm in length (see *Frei*, page 8, Ins. 7-8), and accordingly the projection 16 of *Frei* will be unable to effectively transmit ultrasonic vibrations from the booster 3 to the applicator, which is necessary in the high-powered sewage slurry ultrasonic apparatus of the present invention.

Instead, the projection 16 as disclosed by *Frei* is merely intended to reduce the harmful effects of radial waves extending radially back up to the transducer by providing a waist 17 of reduced cross-sectional area (see *Frei*, page 10, lns. 15-28). Hence, the Examiner has improperly equated the projection 16 of *Frei* with the extender of the present invention.

At least for the reasons stated above, *Ehlert* and *Frei*, either taken alone or in combination, fail to disclose, teach or suggest all the features of present independent claim 1. Accordingly, Applicants respectfully submit that independent claim is in condition for allowance, and such action is hereby solicited.

Furthermore, claims 2-9 are allowable at least by virtue of their dependency from claim 1, but are also distinguishable over the prior art. Thus, Applicants respectfully submit that these claims are in condition for allowance, and such action is hereby solicited.

In view of the foregoing, it is submitted that the present application is in condition for allowance and a notice to that effect is respectfully requested. If, however, the Examiner deems that any issue remains after considering this response, the Examiner is invited to contact the undersigned attorney/agent to expedite the prosecution and engage in a joint effort to work out a mutually satisfactory solution.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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